REMARKS

Claims 1 to 26 remain in the application.

The present invention concerns methods and apparatus used to determine the connectivity of the nodes in a communications network assuming that the connectivity is unknown. The claimed methods and apparatus determine the connectivity of a network without prior knowledge of the port interconnections (ATM switches, Frame Relay switches, Routers, etc.).

The primary reference, Foster et al (U.S. Patent Application No. 2002/0159458), as noted by the Examiner, at page 5, paragraph 0035 reads that "Each port of an interconnected fabric module identifies whether it is connected to a port of another device, such as another switch or a node. The interconnect fabric module then provides to the network manager an indication of which of its ports are connected to other ports to assist in the discovery process."

Contrariwise, Applicants claim a method and apparatus to determine a physical connectivity configuration of at least a portion of network when the physical connectivity configuration is unknown and without prior knowledge of port interconnections.

Independent Claims 1, 13, 25, and 26 stand rejected under 35 USC 102(e) as being unpatentable over Foster et al. Foster et al assumes that network elements can identify which of its ports are connected to other network elements and that the network element can "send a query message through each of the indicated ports to the connected-to ports. The connected-to ports then respond with the identification of the connected-to interconnect fabric modules that comprise the interconnect fabric."

It has long been known in the art that if network elements have the capability described in the preceding paragraph (as assumed by Foster et al); then a manager can

use that capability to discover the connectivity of the network. The claimed invention does not rely on such assumptions, but claims "without using prior knowledge of node interconnections". There are many types of network elements that do not have that capability, for example ATM switches.

The claimed invention uses the connection table of virtual connections that each network element has. The claimed invention does not rely on the use of identification messages to neighbors as described in Foster et al. Foster et al fails to teach or anticipate within its four corners the invention as claimed by Applicants. Therefore, it is respectfully submitted that independent Claims 1, 13, 25, and 26 should be deemed allowable over Foster et al.

Claims 2 and 14 stand rejected under 35 USC 102 (e) as being unpatentable over Foster et al. Paragraph 0029 cited by the Examiner refers to the use of virtual identifiers for routing through a network, not for the purpose of determining the connectivity of the network. In addition, Claim 2 and 14 are dependent upon independent Claims 1and 13. Since the independent should be deemed allowable over Foster et al for the reasons set forth above, Claims 2 and 14 should likewise be deemed allowable over Foster et al.

Claims 3, 5, 15, and 17 stand rejected under 35 USC 102 (e) as being unpatentable over Foster et al. It is respectfully submitted that Claims 3, 5, 15, and 17 should be deemed allowable over Foster et al for the reasons set forth above with regard to Claims 2 and 14.

Claims 6 and 18 stand rejected under 35 USC 102(e) being unpatentable over Foster et al. It is respectfully submitted that Claims 6 and 18 should be deemed allowable for the reasons set forth above with regard to Claims 1, 13, 25, and 26.

Claims 7 and 19 stand rejected under 35 USC 102(e) being unpatentable over Foster et al. Paragraphs 0029 and 0030 describe virtual identifiers for routing data through a network as contrasted with determining virtual path identifiers for determining

the connectivity of the network. Therefore, it is respectfully submitted that Claims 7 and 19 should be deemed allowable over Foster et al.

Claims 9 and 21 stand rejected under 35 USC 102 (e) as being unpatentable over Foster et al. There is an error in the Office Action with regard to the citation. However, Foster et al fails to anticipate within its four corners determining a number of the virtual connections traversing the nodes and determining respective cardinalities of the nodes based on the number of the virtual connections for determining connectivity of the network as claimed by Applicants. Hence, it is respectfully submitted that Claims 9 and 21 should be deemed allowable over Foster et al.

Claims 4, 8, 16, and 20 stand rejected under 35 USC 103 (a) as being unpatentable over Foster et al in view of Dumortier et al (US Patent No. 6,834,054). The use of virtual channel identifiers (VCI) and virtual path identifiers (VPI) in Dumortier et al are used for the purpose of finding shortcuts as an improvement of previous routing methods. Dumortier et al fails to teach or even suggest the claimed method of using the identifiers for determining connectivity of the network as claimed by Applicants. As discussed above, Foster et al also fails to teach or even suggest the use of VCIs or VPIs for determining connectivity of the network as claimed by Applicants. Therefore, it is respectfully submitted that Foster et al and Dumortier et al both individually and in combination fail to teach or even suggest the invention claimed in Claims 4, 8, 16, and 20 and hence, Claims 4, 8, 16, and 20 should be deemed allowable over the art of record.

Claims 10-12 and 22-24 stand rejected under 35 USC 103(a) as being unpatentable over Foster et al in view of Ibe et al (US Patent No. 6,437,807). Ibe et al, describes a method for partitioning a communications network for the purpose of more efficient operation. It is clear from the description in Ibe et al that the links between nodes of the network are always known. In Ibe et al what is referred to as adjacency of the nodes (which nodes are connected to which other nodes) is a given and known initial condition.

Claims 10 and 22 refer to the cardinality of the number of virtual connections at a port (see Claim 9), for the purpose of determining connectivity or the lack of connectivity between two network elements. Applicants do not claim the use node cardinality for the purpose of partitioning the network as described by Ibe et al.

Foster et al and Ibe et al, neither singly nor in combination, teach or even suggest the invention claimed in Claims 10 and 22. Therefore, it is respectfully submitted that Claims 10 and 22 should be deemed allowable over Foster et al and Ibe et al.

With regard to Claims 11 and 23, Foster et al in paragraph 0031 refers to the routing of data through a network not to a criterion for determining connectivity of network elements as claimed by Applicants. Therefore, it is respectfully submitted Claims 11 and 23 should be deemed allowable over the art of record.

With regard to Claims 12 and 24, Foster refers to the routing of data through a network not to a criterion for determining connectivity of network elements. Paragraph 0031 of Foster et al does not make reference to thresholds as claimed by Applicants. Therefore, it is respectfully submitted that Claims 12 and 24 should be deemed allowable over the art of record.

Reexamination, reconsideration and favorable action regarding Claims 1 to 26 are respectfully requested.

Authorization is hereby given to charge Deposit Account No. 02-1822 the fee due under 37 CFR 1.17(a) of $120.00 for a one month extension of the time to reply to the Office Action.

Respectfully submitted,

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